

$^{27}\text{Mg} \beta^-$ decay 1999Ha16,1969Bi06

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 112, 1875 (2011)	30-Nov-2010

Parent: ^{27}Mg : E=0.0; $J^\pi=1/2^+$; $T_{1/2}=9.458$ min 12; $Q(\beta^-)=2610.6$ 6; % β^- decay=100.0

Others: 1998Sh13, 1970Sk06, 1968Be38.

1999Ha16: ^{26}Mg target irradiated with thermal neutrons, ^{27}Mg chemically separated; $4\pi\beta\gamma$ coincidence apparatus consists of $4\pi\beta$ proportional counter and HPGe detector; Measured: $E\gamma$, absolute $I\gamma$ and β^- feeding to levels.

1969Bi06: ^{27}Mg produced from $^{26}\text{Mg}(\text{d},\text{p})$ reaction; Ge(Li), NaI(Tl) detectors; Measured: $E\gamma$, absolute $I\gamma$, $\gamma\beta$ coincidence, deduced β^- feeding to ^{27}Al levels.

1968Be38: ^{27}Mg produced from $^{27}\text{Al}(\text{n},\text{p})$ reaction; Ge(Li) detector; Measured: $E\gamma$, $I\gamma$.

 ^{27}Al Levels

E(level) [†]	J^π [‡]
0.0	$5/2^+$
843.76 9	$1/2^+$
1014.56 9	$3/2^+$

[†] From a least-squares fit to γ -ray energies.

[‡] From Adopted Levels.

 β^- radiations

E(decay)	E(level)	$I\beta^-$ ^{†‡}	Log ft	Comments
(1596.0 6)	1014.56	29.06 9	4.9340 16	av $E\beta=646.34$ 28
(1766.8 6)	843.76	70.94 9	4.7297 10	av $E\beta=724.84$ 28

[†] From γ -ray transition intensity balance.

[‡] Absolute intensity per 100 decays.

 $\gamma(^{27}\text{Al})$

$I\gamma$ normalization: normalization from decay scheme.

E_γ [†]	I_γ [#]	E_i (level)	J_i^π	E_f	J_f^π
170.82 10	0.86 2	1014.56	$3/2^+$	843.76	$1/2^+$
843.76 10	71.80 2	843.76	$1/2^+$	0.0	$5/2^+$
1014.52 10	28.20 2	1014.56	$3/2^+$	0.0	$5/2^+$

[†] From 1969Bi06.

[#] From 1999Ha16. Uncertainties for 834γ and 1014γ intensities have been deduced by the evaluator based on $I\gamma(844\gamma)/I\gamma(1014\gamma)=0.39276(43)$ (1999Ha16). Uncertainties of 0.08 is reported in 1999Ha16 for these γ -ray intensities.

Absolute intensity per 100 decays.

$^{27}\text{Mg} \beta^- \text{ decay} \quad 1999\text{Ha16,1969Bi06}$

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

Legend

- $I_\gamma < 2\% \times I_\gamma^{\max}$
- $I_\gamma < 10\% \times I_\gamma^{\max}$
- $I_\gamma > 10\% \times I_\gamma^{\max}$

